

(December 2, 2002)

Fabric Pad Bearing

Pre-formed Fabric Pads

Pre-formed fabric pads shall be composed of multiple layers of duck, impregnated and bound with high quality oil resistant synthetic rubber, compressed into resilient pads of uniform thickness. The duck shall be of highest quality cotton or cotton-polyester 50-50 blend, and shall have a minimum mass of 272 grams per square meter. The cotton warp and the filling yarn shall be 2-ply. The cotton-polyester warp and fill shall be single yarn, with a minimum breaking strength by grab method of 1.03 megapascals warp, and 0.97 megapascals fill. The filling count of the duck shall be 40 ± 2 threads per 25.4 millimeters and the warp count shall be 50 ± 1 threads per 25.4 millimeters. The number of piles shall be sufficient produce the specified thickness, after compression and vulcanizing.

The finished pads shall withstand compression loads perpendicular to the plane of the laminations of not less than 68.95 megapascals without any sign of failure after the load is removed. Failure is defined as any breakdown of the component materials or laminations.

The pre-formed fabric pad shall have a shore A hardness of 90 ± 5 .

Polytetrafluorethylene (PTFE) Sheet

PTFE self-lubricating bearing sheet shall be 3.18 millimeters thick unless otherwise noted in the Plans. PTFE sheet shall be composed of 100 percent virgin (unfilled) polytetrafluorethylene polymer except where filled PTFE is specified in the Plans. PTFE sheet shall be recessed and bonded to a depth of one half the PTFE sheet thickness into the steel backing plate. The exposed height of the PTFE shall not be less than 1.19 millimeters. The substrate shall limit the flow (elongation) of the confined PTFE to not more than 0.2286 millimeters under a pressure of 13.79 megapascals for 15 minutes at 25C for a 50.8 millimeter by 76.2 millimeter test sample. Dimpled PTFE, if shown in the Plans, shall be unfilled and have a minimum thickness of 4.76 millimeters. Dimples shall be placed in a 12.7 millimeter grid and shall have a depth of 1.59 millimeters.

Unfilled PTFE shall conform to the following requirements:

<u>Requirement</u>	<u>Test Methods</u>	<u>Value</u>
Hardness at 25C	ASTM D 2240	50-65 Durometer D
Tensile Strength	ASTM D 1457	19.31 MPa (Min.
Avg.)		
Elongation %	ASTM D 1457	200 (Min. Avg.)
Specific Gravity	ASTM D 792	2.14 to 2.21

Filled PTFE sheet shall be made from virgin PTFE resin uniformity blended with inert filler material (15% glass fiber). Filled PTFE shall conform to the following requirements:

	<u>Requirement</u>	<u>Test Methods</u>	<u>Value</u>
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3	Tensile Strength	ASTM D 1457	15.2 MPa (Min.
4	Avg.)		
5	Elongation %	ASTM D 1457	150% (Min. Avg.)
6	Specific Gravity	ASTM D 792	2.2
7	Melting Point	ASTM D 1457	327C ± 10C
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9 **Stainless Steel Sheet**

10 Stainless steel sheet shall be no less than 14 gage meeting ASTM A 240
 11 Type 304L specifications. Stainless steel in contact with the PTFE shall
 12 polished to a Number 8 mirror finish.

14 **Structural Carbon Steel**

15 Sole plates and steel backing plates, and masonry plates if shown in the
 16 Plans, shall conform to ASTM A 36M and the dimensions shall conform to
 17 the details shown in the Plans. The surface of the recess of the steel
 18 backing plate shall have an average surface roughness of 6.35
 19 micrometers. The surface of the sole plate in contact with the stainless
 20 steel sheet shall have an average surface roughness of 3.175 micrometers.

22 **Welded Shear Connectors**

23 Welded shear connectors shall conform to Section 9-06.15.

25 **Bolts and Washers**

26 Bolts and washers shall conform to Section 9-06.5(3), and shall be
 27 galvanized after fabrication in accordance with AASHTO M 232.

29 **Anchor Bolts, Nuts and Washers**

30 Anchor bolts, nuts and washers, if shown in the Plans, shall conform to
 31 Section 9-06.5(4). The top 300 millimeters of the exposed end of the
 32 anchor bolts, and the associated nuts and washers, shall be galvanized
 33 after fabrication in accordance with AASHTO M 232.

35 **Concrete Inserts**

36 Concrete inserts shall be as specified in the Plans.

38 **Silicone Grease and Epoxy Gel**

39 Silicone grease shall conform to Military Specification MIL-S-8660.

41 Epoxy gel shall conform to the requirements of Section 9-26.1, Type I,
 42 Grade 3, Class A, B, or C.

44 **Submittals of Test Reports, Certifications, and Samples**

45 The Contractor shall submit to the Engineer the following test reports,
 46 certifications, and samples for review, testing and approval, prior to
 47 installing the fabric pad bearings:

- 49 1. Manufacturer's certificate of compliance for the
 50 polytetrafluorethylene (PTFE) sheeting, fabric, and elastomer, the
 51 pre-formed fabric pad duck, the silicone grease, and the epoxy gel.

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2. Certified mill test reports for all steel and stainless steel in the bearing assemblies.
3. Certified test reports confirming that the pre-formed fabric pads meet the specified requirements of proof load.
4. Samples of the pre-formed fabric pads, size 150mm by 150mm by 25.4mm, and PTFE sheet, size 50mm by 75mm by 3.18mm, from the production material.

11 The Engineer will require 15 calendar days to review and test the submitted
12 certificates, test reports, and samples. If all or a portion of the submittal fail
13 to meet the specified requirements, the Contractor shall correct the
14 deficiencies and resubmit to the Engineer. An additional 15 calendar days
15 may be required by the Engineer for review of each resubmittal.